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Paper 8
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD., SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG TELECOMMUNICATIONS AMERICA, LLC, and SAMSUNG AUSTIN SEMICONDUCTOR, LLC,
Petitioner,

v.

REMBRANDT WIRELESS TECHNOLOGIES, LP,
Patent Owner.

Case IPR2014-00892
Patent 8,457,228 B2

Before JAMESON LEE, HOWARD B. BLANKENSHIP, and JUSTIN BUSCH, *Administrative Patent Judges.*

BLANKENSHIP, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. BACKGROUND

Samsung Electronics Co. Ltd., Samsung Electronics America, Inc., Samsung Telecommunications America, LLC, and Samsung Austin

Semiconductor, LLC (collectively, "Petitioner") request *inter partes* review of claims 1–3, 5, and 10–21 of U.S. Patent No. 8,457,228 B2 ("the '228 patent," Ex. 1301) under 35 U.S.C. §§ 311–319. Paper 2 (Petition or "Pet."). Rembrandt Wireless Technologies, LP (Patent Owner) filed a Preliminary Response (Paper 6, "Prelim. Resp.") as permitted by 37 C.F.R. § 42.107. We have jurisdiction under 35 U.S.C. § 314. Section 314 provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

For the reasons that follow, we institute an *inter partes* review of claims 1–3, 5, and 10–20 of the '228 patent. We do not institute review as to challenged claim 21.

Related Proceedings

According to Petitioner, the '228 patent is involved in the following lawsuit: *Rembrandt Wireless Technologies, LP v. Samsung Electronics Co*, No. 2:13-cv-00213 (E.D. Tex. 2013). Pet. 1–2. The '228 patent also has been challenged in the following cases: *Samsung Electronics Co. v. Rembrandt Wireless Technologies, LP*, IPR2014-00889; *Samsung Electronics Co. v. Rembrandt Wireless Technologies, LP* , IPR2014-00890; *Samsung Electronics Co. v. Rembrandt Wireless Technologies, LP* , IPR2014-00891; *Samsung Electronics Co. v. Rembrandt Wireless Technologies, LP*, IPR2014-00893; and *Samsung Electronics Co. v. Rembrandt Wireless Technologies, LP*, IPR2014-00895.

The '228 Patent

The '228 Patent issued from an application filed August 4, 2011, which claimed priority under 35 U.S.C. § 120 through a chain of intervening applications to an application filed December 4, 1998, and which further claimed priority under 35 U.S.C. § 119 to a provisional application filed December 5, 1997.

The technical field of the patent relates to data communications and modulators/demodulators (modems), and in particular to a data communications system in which a plurality of modems use different types of modulation in a network. Ex. 1301, col. 1, ll. 21–25; col. 1, l. 58 – col. 2, l. 23.

Illustrative Claim

Of the challenged claims, only claim 1 is independent.

> 1. A master communication device configured to communicate with one or more slave transceivers according to a master/slave relationship in which a slave communication from a slave device to the master communication device occurs in response to a master communication from the master communication device to the slave device, the master communication device comprising:
>
> a master transceiver configured to transmit a first message over a communication medium from the master transceiver to the one or more slave transceivers, wherein the first message comprises:
>
> first information modulated according to a first modulation method,
>
> second information, including a payload portion, modulated according to the first modulation method, wherein the second information comprises data intended for one of the one or more slave transceivers and

first message address information that is indicative of the one of the one or more slave transceivers being an intended destination of the second information; and

said master transceiver configured to transmit a second message over the communication medium from the master transceiver to the one or more slave transceivers wherein the second message comprises:

third information modulated according to the first modulation method, wherein the third information comprises information that is indicative of an impending change in modulation to a second modulation method, and

fourth information, including a payload portion, transmitted after transmission of the third information, the fourth information being modulated according to the second modulation method, the second modulation method being of a different type than the first modulation method, wherein the fourth information comprises data intended for a single slave transceiver of the one or more slave transceivers, and

second message address information that is indicative of the single slave transceiver being an intended destination of the fourth information; and

wherein the second modulation method results in a higher data rate than the first modulation method.

Prior Art

Boer	US 5,706,428	Jan. 6, 1998	(Ex. 1304)

Asserted Ground of Unpatentability

Petitioner asserts the following ground of unpatentability as to claims 1–3, 5, and 10–21 (Pet. 2): obviousness under 35 U.S.C. § 103(a) over Admitted Prior Art ("APA")[1] and Boer.

II. ANALYSIS

Claim Interpretation

In an *inter partes* review, the Board construes claim terms in an unexpired patent using their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). The claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The Office must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification. *Id.* (citing *In re Bass*, 314 F.3d 575, 577 (Fed. Cir. 2002)). There is a "heavy presumption" that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). The "ordinary and customary meaning" is that which the term would have to a person of ordinary skill in the art in question. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

[1] We discuss the asserted APA *infra*.

Types of Modulation Methods

Claim 1 recites a master transceiver configured to transmit messages modulated according to a first and a second modulation method, "the second modulation method being of a different type than the first modulation method . . . ."

Petitioner submits that the ordinary meaning of "modulation" is "'[t]he process by which some characteristic of a carrier [wave] is varied in accordance with a modulating wave.'" Pet. 13 (citing Declaration of David Goodman (Ex. 1323) ¶ 88; Ex. 1320, 3 (technical dictionary)). Petitioner contends that a "first modulation method" should be interpreted as "*a process of varying characteristic(s) of a carrier wave that is different from a second modulation method,"* and a "second modulation method" should be interpreted as "*a process of varying characteristic(s) of a carrier wave that is different from a first modulation method.*" Pet. 13. Petitioner submits that different "types" of modulation methods extend to methods that are merely incompatible with one another. *Id.* at 9–10.

Patent Owner submits that "the second modulation method being of a different type than the first modulation method" should be construed as "the second modulation method being of a different family of modulation techniques than the first modulation method." Prelim. Resp. 11. Further, "a different type of modulation method" should be construed as "a different family of modulation techniques." *Id.* Patent Owner argues that the broadest reasonable interpretation of "types" of modulation methods does not extend to modulation methods that are known merely to be incompatible with each other, but is limited to different "families" of modulation techniques, e.g., the FSK (frequency shift keying) "family" of modulation

methods and the QAM (quadrature amplitude modulation) "family" of modulation methods. *Id.* at 6–11. Patent Owner's position is thus contrary to Petitioner's position, in that Petitioner contends that different "types" of modulation methods require no more than that the first and second modulation methods be incompatible with one another. Pet. 9–10.

For purposes of this decision, we need not, and do not, determine the scope of the above-noted terms in controversy. We are persuaded that elements in the prior art are within the scope of the relevant terms under any reasonable construction. *See* § II.D, *infra*.

Proposed Ground of Unpatentability

A. "Prior Art"

Section 103 of Title 35 U.S.C., which makes nonobviousness of the invention a prerequisite to patentability, requires a determination of the differences between the subject matter sought to be patented and "[t]he prior art." *In re Bergy*, 596 F.2d 952, 965 n.7 (CCPA 1979), *aff'd sub nom. Diamond v. Chakrabarty*, 447 U.S. 303 (1980) (citations omitted). However, Title 35 nowhere defines the term "prior art." *Id.*

> Its exact meaning is a somewhat complex question of law which has been the subject of legal papers and whole chapters of books. . . . Basically, the concept of prior art is that which is publicly known, or at least known to someone who has taken steps which do make it known to the public, . . . or known to the inventor against whose application it is being applied.

Id. (citations omitted).

> "The term 'prior art' as used in section 103 refers at least to the statutory material named in 35 U.S.C. § 102. . . . However,

> section 102 is not the only source of section 103 prior art. Valid prior art may be created by the admissions of the parties."

Riverwood Int'l Corp. v. R.A. Jones & Co., Inc., 324 F.3d 1346, 1354 (Fed. Cir. 2003) (citations omitted). Although a reference can become prior art by admission, that doctrine is inapplicable when the subject matter at issue is the inventor's own work. *Id.*

B. Admitted Prior Art

Petitioner contends that the '228 patent contains material that may be used as prior art against the patent under 35 U.S.C. § 103(a). Figure 1 of the patent is labeled as "Prior Art." Pet. 5; Ex. 1301, Fig. 1. Further, the '228 patent's specification refers to "prior art" multipoint communication system 22 comprising master modem or transceiver 24, which communicates with a plurality of tributary modems ("tribs") or transceivers 26. Pet. 6; Ex. 1301, col. 3, l. 64 – col. 4, l. 1. Further, the '228 patent describes Figure 2 as illustrating the operation of the multipoint communication system of (prior art) Figure 1. Pet. 6; Ex. 1301, col. 3, ll. 33–34.

Patent Owner argues that Petitioner has not shown that the "alleged admitted prior art" is the work of another — i.e., not the inventor's own work. Prelim. Resp. 17–21. Petitioner has met its initial burden, however, in demonstrating that the subject matter of the '228 patent's Figure 1, and accompanying description, constitutes "prior art" by pointing out that the patent expressly describes the subject matter as such. *See In re Nomiya*, 509 F.2d 566, 570–71 (CCPA 1975) ("We see no reason why appellants' representations in their application should not be accepted at face value as

admissions that Figs. 1 and 2 may be considered 'prior art' for any purpose, including use as evidence of obviousness under [§] 103.").

Patent Owner's argument that Figures 1 and 2 of the '228 patent represent the inventor's identification of a "source of a problem" (Prelim. Resp. 21–23) is, similarly, inapposite. Petitioner does not rely on the face-value admissions in the patent as a problem to be solved or as identifying a problem in the prior art. *See, e.g.*, Pet. 20.

For the foregoing reasons, we are persuaded that, on this record, the subject matter of Figures 1 and 2 of the '228 patent, and the text of the patent that further describes those Figures, may be applied as prior art in this proceeding.

C. Boer

Boer describes a wireless LAN that includes first stations that operate at 1 or 2 Mbps (Megabits per second) data rate and second stations that operate at 1, 2, 5, or 8 Mbps data rate. Ex. 1304, Abstract.

Figure 1 of Boer is reproduced below.

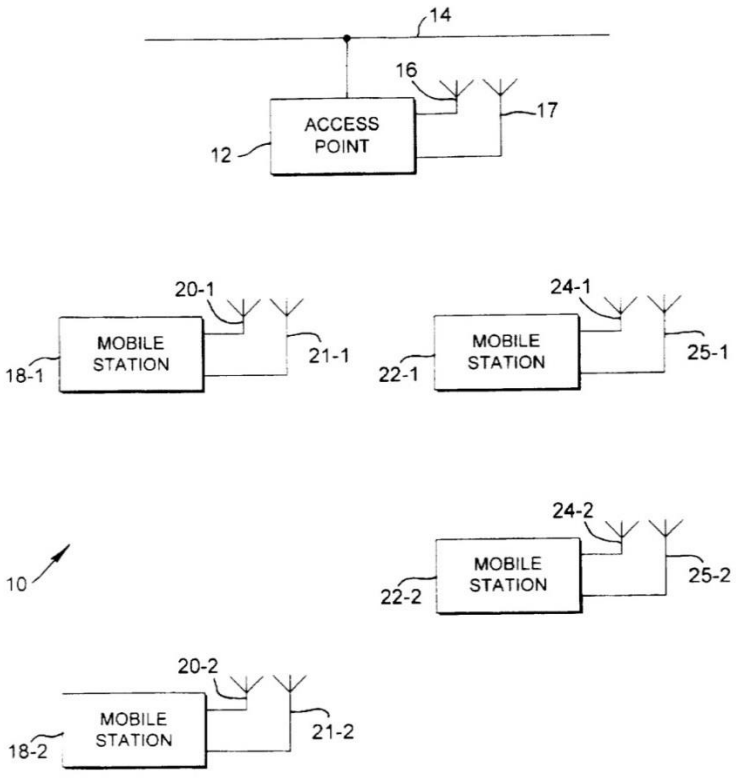

FIG.1

Figure 1 is said to be a block diagram of a wireless LAN embodying Boer's invention. Ex. 1304, col. 1, ll. 53–54. LAN 10 includes access point 12, serving as a base station. The network includes mobile stations 18-1 and 18-2 that are capable of transmitting and receiving messages at a data rate of 1 or 2 Mbps using DSSS (direct sequence spread spectrum) coding. When operating at 1 Mbps, a station uses DBPSK (differential binary phase shift keying) modulation. When operating at 2 Mbps, a station uses DQPSK (differential quadrature phase shift keying) modulation. *Id.* at col. 2, ll. 6–27. Mobile stations 22-1 and 22-2 are capable of operating at the 1 and 2 Mbps data rates using the same modulation and coding as stations 18-1 and 18-2. In addition, stations 22-1 and 22-2 can operate at 5 and 8 Mbps data rates using PPM/DQPSK (pulse position modulation–differential quadrature

phase shift keying) in combination with the DSSS coding. *Id.* at col. 2, ll. 34–44.

D. Claims 1–3, 5, and 10–20

Petitioner applies the teachings of APA and Boer to demonstrate obviousness of the subject matter of claim 1, relying on APA for teaching of master/slave communication systems. Pet. 20– 29, 40–48 (claim chart). Petitioner submits that a person having ordinary skill in the art would have been motivated to combine Boer with APA because the combination would increase the flexibility and efficiency of prior art master/slave communication systems, thus allowing the APA master/slave network to adapt to the needs of applications. *Id.* at 19 (referring to the Goodman Declaration, Ex. 1323 ¶¶ 121–122).

Patent Owner responds that Petitioner fails to explain how Boer's statement that "it may be advantageous to provide systems operating at higher data rates, which are not in accordance with the [draft 802.11] standard" would motivate one of ordinary skill to implement the teachings of Boer with APA. Ex. 1304, col. 1, ll. 16–25; Prelim. Resp. 31–32. We agree with Patent Owner. Petitioner, however, submits an alternative reason for the combination that is founded on simplicity and determinacy. Pet. 19–20; Ex. 1323 ¶¶ 124–125. In particular, Mr. Goodman testifies that polled multiport master/slave communications systems were well known to those of ordinary skill in the art for simplicity and determinacy, referring to Exhibit 1322. Ex. 1323 ¶ 124. Petitioner submits Exhibit 1322 is a November 1994 publication that compares various strengths and weaknesses for communication protocols for embedded systems. Ex. 1322, 7. The

document states that polling is one of the more popular protocols for embedded systems "because of its simplicity and determinacy." *Id.* In that protocol, a centrally assigned master periodically sends a polling message to the slave nodes, giving them explicit permission to transmit on the network. *Id.* The protocol "is ideal for a centralized data-acquisition system where peer-to-peer communication and global prioritization are not required." *Id.* On this record, we are persuaded that Petitioner has identified sufficient motivation from the prior art for the combination proposed.

Turning to the requirements of claim 1, the claim recites two types of modulation methods, "the second modulation method being of a different type than the first modulation method." Petitioner contends that Boer's DBPSK modulation corresponds to the claimed "first" modulation method. *E.g.*, Pet. 26. Petitioner submits that either of Boer's DQPSK modulation and PPM/DQPSK modulation corresponds to the claimed "second" modulation method. *Id.*

Patent Owner argues that neither of DQPSK and PPM/DQPSK can be considered a modulation method of a type different from DBPSK. Prelim. Resp. 37–38. For purposes of this decision, we need not determine the breadth of a different "type" of modulation method as claimed, and need not determine whether one of ordinary skill in the art would regard DQPSK to be a "type" of modulation method different from DBPSK. Boer's description of PPM/DQPSK modulation falls within the meaning of a "different type" of modulation method under any reasonable construction of the terms. *Cf.* Ex. 1323 ¶ 159 ("Five Mbps PPM/DQPSK and eight Mbps PPM/DQPSK are different 'types' of modulation than DBPSK under any possible claim construction."). According to Mr. Goodman, phase is not

used in PPM, unlike in DBPSK and DQPSK modulation. *Id.* ¶ 160. In PPM, the start and stop time of a transmission is varied in response to the information to be transmitted, with the time shift being indicative of data bits. *Id.*

Patent Owner submits that "varying the start and stop time of a transmission of a carrier wave does not result in varying any characteristic of the carrier wave." Prelim. Resp. 36. Patent Owner does not explain, however, how the "start and stop time" of a transmission of a carrier wave cannot be considered one or more "characteristic[s]" of the carrier wave. We acknowledge there is *some* support in Boer for Patent Owner's position, in Boer's reference to PPM as "PPM type coding." *Id.*; Ex. 1304, col. 4, ll. 45–48. The fact remains, however, that the term "modulation" is part of the descriptive name for PPM — pulse position *modulation.* Patent Owner has not explained sufficiently, given the other evidence of record, why pulse position *modulation* cannot be considered a type of modulation method, even if the method might be applied for "coding" in Boer. *Id.*

We have reviewed the information presented in the Petition and Patent Owner's Preliminary Response. We are persuaded there is a reasonable likelihood that Petitioner would prevail in its challenge of claims 1–3, 5, and 10–20 for obviousness over APA and Boer and APA.

E. Claim 21

Claim 21, which depends directly from claim 1, recites that the first information that is included in the first message "comprises the first message address data." Petitioner maps the claimed "first information" as corresponding to header 218 of message 200 depicted in Figure 4 of Boer.

Pet. 39, 41; Ex. 1304, col. 3, ll. 42–55. Petitioner admits that Boer does not teach placing its address information in header 218 (Ex. 1304, Fig. 4). Pet. 39. Boer teaches that DATA field 214 (Fig. 4), which is deemed to correspond to the "second information," contains a destination address. Pet. 38–39; Ex. 1304, col. 6, ll. 28–31.

Petitioner submits that the '228 patent "admits" that placing address information in the training sequence of a message is prior art. Pet. 39. Petitioner does not indicate how such an admission might be relevant to claim 21. The '228 patent teaches that in a multipoint system the address of the trib with which the master is establishing communication is also transmitted during the training interval. Ex. 1301, col. 4, ll. 19–22. The "training signals" that are exchanged during the training interval, however, are "sequences of signals of particular subsets of all signals that can be communicated via the agreed upon common modulation method." *Id.* at col. 4, ll. 5–10. Petitioner does not identify any teaching of placing address data in the message header.

Petitioner concludes that "[a] person having ordinary skill in the art would have been motivated to combine the APA with Boer due to the similarities between the packet structures and because where the address fields are placed is a matter of design choice." Pet. 39, citing Ex. 1323 ¶ 212. Petitioner has not identified a teaching in the applied prior art of placing address data in the header of a message. Nor has Petitioner provided evidence sufficient to demonstrate that the ordinary artisan would have considered placing the address data as claimed to be a mere matter of "design choice." Petitioner's conclusory allegation of "design choice" does not provide the required "articulated reasoning with some rational

underpinning to support the legal conclusion of obviousness." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

For the foregoing reasons we are not persuaded that Petitioner has established a reasonable likelihood that it would prevail in its challenge of claim 21.

III. CONCLUSION

The Petition demonstrates a reasonable likelihood of prevailing on the obviousness grounds of unpatentability as to claims 1–3, 5, and 10–20 based on APA and Boer. The Petition does not demonstrate a reasonable likelihood of prevailing on the obviousness ground of unpatentability as to claim 21 based on APA and Boer.

The Board has not made a final determination on the patentability of any challenged claim.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that an *inter partes* review is instituted as to claims 1–3, 5, and 10–20 of the '228 patent on the obviousness ground based on APA and Boer;

FURTHER ORDERED that the Petition is denied as to all other grounds set forth in the Petition;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '228 patent is instituted with trial commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is given of the institution of the trial; and

FURTHER ORDERED that the trial is limited to the grounds identified immediately above and no other ground is authorized for the '580 patent claims.

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